

'Blue Stones' having been brought from a distance and set up as a sacred circle, and the supposition that the Sarsens were added afterwards around them, are disproved by evidence of their contemporaneity, by the mode of occurrence of the chippings, and of the stones themselves.

The use of bronze was unknown before 1800 B.C., and there were no bronze tools found in the diggings. Mr. Gowland is therefore inclined to consider that Stonehenge was raised before the incoming of the Bronze Age at the above date. This nearly approximates with the result of the important astronomical investigation by Sir Norman Lockyer and Mr. Penrose as to the relative position of sunrise at the summer solstice and the probable age of Stonehenge.

Professor Judd, in his clear and comprehensive description of the stones of Stonehenge (pp. 70 et seq.), gives the bold but well-founded suggestion that all the stones once lay about on the surface of the district. The Sarsens, being the concretionary relics of the denuded Bagshot Sands, were large and abundant. The 'Blue Stones,' of smaller size and of various characters, were relics of the glacial Boulder-clay, which reached in the Southern Counties further than is usually described. The presence of similar rocks in the gravels of the rivers of the South of England, including those that drain Salisbury Plain, support this opinion. The absence of such rocks, foreign to the district, on the surface now, may be well accounted for. The softer rocks were gradually weathered away, and the harder kinds were continually being used for local purposes, like the existing scattered Sarsens in Berks and Wilts. These 'Blue Stones' were, moreover, evidently dressed on the spot when taken to the circle, for their chippings are more numerous than those of the Sarsens in some of the diggings. T. R. J.

II.—EGYPTIAN GEOLOGY.

Survey Department, Public Works Ministry, Egypt. Geological Survey Report, 1900. Part II: The Cretaceous Region of Abu Roash, near the Pyramids of Giza. By HUGH J. L. BEADNELL, F.G.S. 8vo; 48 pp., 13 pls. (Cairo, 1902.)

THIS is an attempt to give an adequate description of the geology of a small area lying to the west of Cairo. It is a district that has received the attention of many observers before, as Mr. Beadnell is careful to record in his historical sketch which forms an introduction. The report is accompanied by a geological map, which the author tells us is sufficient for present requirements. It is not possible for anyone who has not been over the ground to criticize the details of the stratigraphy, but it appears to have been carefully done, and numerous detailed sections are given which should render the work of great value to future observers. The author, too, has a topographical knowledge which is so exact as to allow him to write in a more interesting manner than is usual in official reports. It is a matter for regret that those who are engaged in a geological survey of a country do not also enjoy the advantage of some special

palæozoological training. It is, as a rule, difficult for a surveyor to properly decide the exact age of the rocks among which he is working, unless he is himself able to name his own collections. We know that this was not formerly considered necessary even on the Geological Survey here at home, and much of the confusion of age which has arisen in various places is doubtless due to this indifference to the high importance of a constant reference to palæozoological guideposts and zone-marks. The system which demands that one man shall map everything from Archæan to Recent doubtless debars many geologists from anything more than a superficial acquaintance with fossils in the field, but that it is a necessary consequence is disproved by many well-known Continental names.

The report is illustrated in an admirable manner, and plates iii and vii (collotypes) are perfect, and show that Mr. Beadnell is also an expert photographer. The three plates of wind-worn pebbles are photogravures and excellent, but such ordinary objects seem scarcely worthy of the expense incurred; certainly one plate would have sufficed.

The Director-General of the Egyptian Survey and his staff may well be proud of the stratigraphical results of their labours; and in gracefully accepting the special knowledge of fossil forms afforded them by Dr. Andrews, Mr. Bullen Newton, Professor Gregory, and others, they cannot fail to enhance the high scientific value of the palæozoological results obtained in this most interesting and ancient country.

C. D. S.

REPORTS AND PROCEEDINGS.

GEOLOGICAL SOCIETY OF LONDON.

I.—January 21st, 1903. — Professor Charles Lapworth, LL.D., F.R.S., President, in the Chair. The following communications were read:—

1. "The Figure of the Earth." By William Johnson Sollas, M.A., D.Sc., LL.D., F.R.S., F.G.S., Professor of Geology in the University of Oxford.

The almost precise correspondence of great terrestrial features with a circular form seems to be frequently overlooked. The Aleutian curve has its centre in lat. 6° N., long. 177° W., that of the East Indies about 15° N. and 118° E., and round the latter centre are several concentric curves. The northern part of South America, the Alpine-Himalayan chain, the western shore of North America, and a portion of Australia may be similarly reduced to geometric form. A great circle swept through the centres of the East Indian and Aleutian arcs runs symmetrically through the bordering seas of Asia as far as Alaska, borders the inland lakes of America, passes the Californian centre, extends through the middle of the Caribbean Sea, runs parallel with the coast of the Antarctic Continent, and returns to the East Indian centre without touching Australia. This course is in remarkable correspondence with the general trend of the